

Agricultural BIODIVERSITY

Feeding the World



Biodiversity is...

- ...An essential tool in the successful production of healthy food.
- ...A valuable strategy for coping with unpredictable weather & climate change.
- ...Nature's insurance policy; a means to achieving a resilient food supply.

What is Biodiversity?

It's the variety of life on earth and the complex essential relationships between all parts of the natural world: from the thousands of varieties of plants and food crops, to countless species of animals, insects, and aquatic life, to the microbes in our soils. It's the very foundation of Earth's deeply interconnected ecosystems. And its many services are essential for humanity's well-being.

Through 10,000 years of careful selection and planting choices, farmers have played a critical role in conserving the planet's priceless agricultural diversity. To provide a varied and complete diet for human beings to thrive, farmers must grow many different kinds of food crops. But just as important, farmers must keep alive a wide range of variety *within* crop types. Each of their seed varieties packs a treasure of problem-solving capability to evolve and adapt to local changing needs and conditions – such as climate – and to resist pests and disease. Variety spreads risk: if something fails, there's a back-up plan.

Continued biodiversity loss has serious implications for human beings in every part of the world today, and into the future. We need to act now to save biodiversity – nature's brilliant insurance policy against disaster.



Diversity and Hunger

A study in 2000 showed that planting multiple rice varieties in one field in China increased yields by 89%. It resulted in a 94% drop in the incidence of disease, making the use of pesticides redundant.

Decades of violence and oppression had devastated Timor Leste's countryside, leaving vulnerable mountain villages in a state of food insecurity. USC programs have been supporting communities in building terraces on eroding hillsides and planting a variety of food crops. In three years, these villages have significantly restored soils and enhanced nutrition.

Communities that, three years ago, struggled to eat every day are, today, growing enough food to feed themselves three daily meals!



Celestine and Fidelia harvest cucumber and mint in their mountain Timor Leste village.

Diversity and Social Justice

In Honduras, agricultural investment has focused on the fertile coastal plains, reserved for commercial mono-crops destined for export. Meanwhile, 85% of the population struggles to feed themselves in challenging mountain environments. USC's local partner – the Foundation for Participatory

Research with Honduran Farmers (FIPAH) – helps farmers breed new varieties of their own traditional seeds, specifically adapted to local ecosystems.

Participating farmers are organized into small research teams so they can benefit from the knowledge and experience that each member brings. That strategy has proved successful and in 2009, with the helping hand of a local university, participating farmers developed five new varieties: four bean types and a variety of corn. Farmers who practice biodiversity-based agriculture are better able to control what and how food is produced.

Santo Benito Ramos, of Honduras, with a diversity of maize.



Diversity and Climate Change

Last year, severe frosts in Bolivia's highlands devastated fields of introduced potato varieties. Next to them, rows of indigenous varieties remained intact – healthy and resilient through to harvest.

Local potato varieties in Bolivia survive severe frost.



Aissata Ongoiba



In Mali, Aissata Ongoiba has taken care of a community seed bank in Badiari village for 14 years. Under her guidance, the bank has built a collection of 136 varieties of 11 different species of food crops – all locally adapted to grow in parched West African soils.

The Crisis of Biodiversity

There are almost half a million known plants species, and more are still being discovered. Yet, due to human activities such as the way we commercially produce food, agricultural diversity is being lost at alarming rates: 75% of the world's crop varieties and thousands of livestock breeds have been lost over the past century! It's the loss of genetic diversity *within species* that weakens our resilience to pests, diseases, and climate change.

Climate change will massively alter global food production, especially in drylands, mountain regions, and seacoasts. Many of the small-scale farmers – who currently feed a majority of the world, represent 80% of the world's poor, and contribute least to global greenhouse gas emission – are already affected by climate change. As never before, the fragile balance of the Earth is at serious risk.

A handful of multinational seed and agrochemical corporations have been gobbling up the world seed market. Ten companies control more than 55% of the world's seed market. They tend to commercialize only a few varieties and increasingly use patents to prohibit farmers from saving and exchanging seeds.

A few figures...

- About 75% of food biodiversity was lost in the 20th century.
- We continue to lose biodiversity at the rate of 2% every year.
- Today, 80% of the world's dietary energy is supplied by just 12 industrial crops.



Recommendations

- Protect farmers' rights to save seeds.
- Increase the financial and institutional support to on-farm conservation of plant genetic diversity initiatives and ensure that ecological conservation is a major component of agricultural and aid policies.
- Implement the *Convention for Agricultural Biodiversity's (CBD) 2010 Biodiversity Targets/plan of action* adopted in 2002, as well as the findings of the *International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD)*.
- Evaluate the impacts of Intellectual Property Rights on limiting biodiversity use and development.

Take Action!

- Support small-scale farmers & on-farm conservation around the world. *Donate today.*
- Support local farmers at home that practice ecological farming (community supported agriculture, etc.)
- Urge Canada to meet the *CBD 2010 targets/plan of action*
- Convert your garden patch to local or heirloom varieties
- Reduce your ecological footprint and conserve biodiversity.

Hungry For More?

- **The Seed Map: Food, Farmers, and Climate Chaos:** www.seedmap.org
- **Banking Diversity** (USC Canada, 2009): www.usc-canada.org/bankingdiversity
- **Global Biodiversity Outlook3** (UN Convention on Biological Diversity, 2010): www.usc-canada.org/outlook
- **Agriculture at a Crossroads** (IAASTD, 2008): www.agassessment.org
- **A Viable Food Future** (The Development Fund, 2010): www.usc-canada.org/viable-food
- **Who Will Feed Us?** (ETC Group, 2009): www.etcgroup.org/en/node/4921
- **Who Owns Nature?** (ETC Group, 2008): www.etcgroup.org/en/node/707



Natividad Colque, of Bolivia, grows 14 varieties of indigenous potato varieties.



USC Canada was founded by Dr. Lotta Hitschmanova in 1945. Our award-winning Seeds of Survival program promotes vibrant family farms, strong rural communities, and healthy ecosystems around the world.

Learn more at www.usc-canada.org

